

Burnett (S.M.)

CONTRIBUTIONS TO CLINICAL OPHTHALMOLOGY:
BEING GLEANINGS FROM MY
CASE-BOOKS

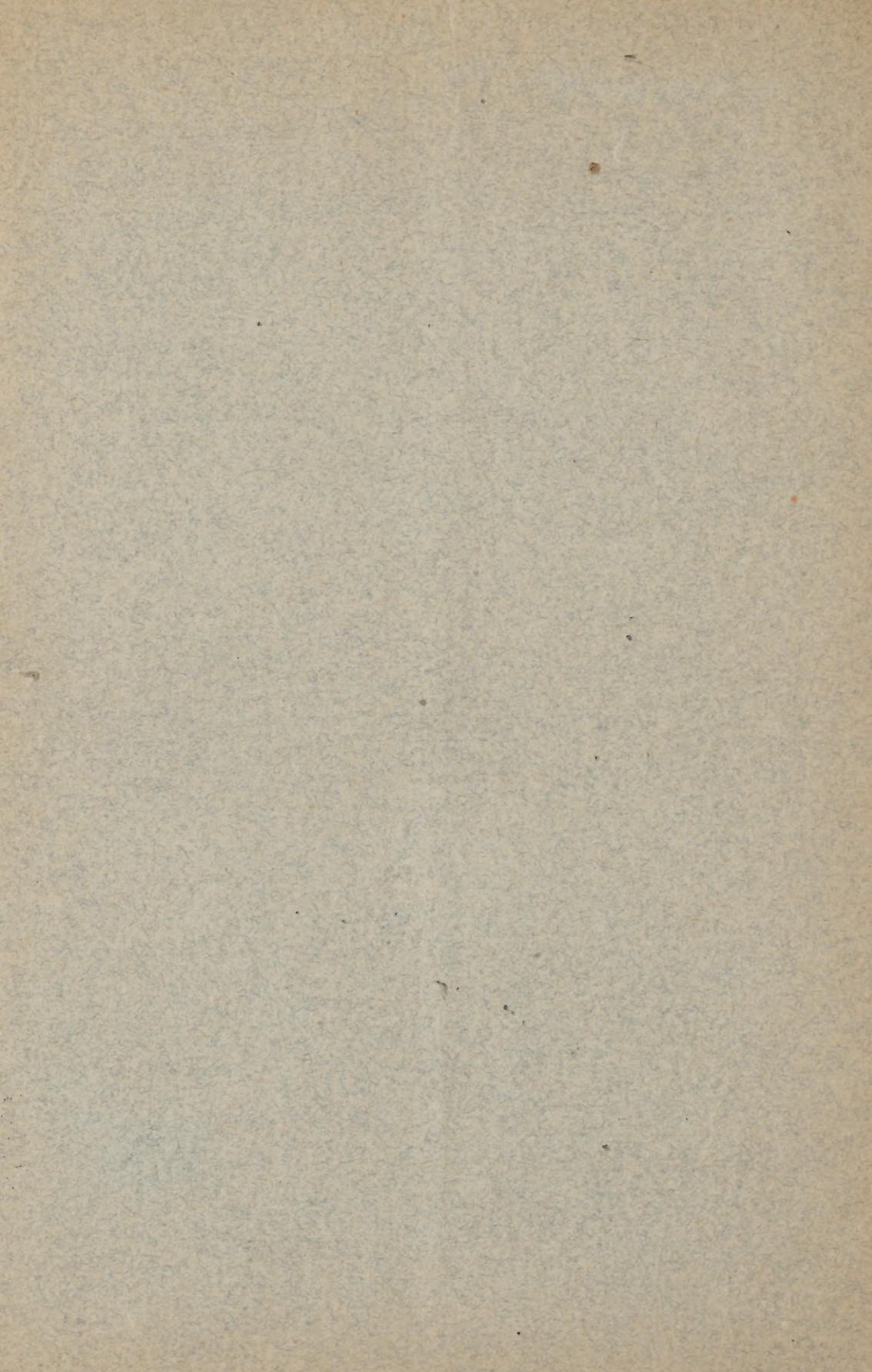
BY

SWAN M. BURNETT, M.D., PH.D., WASHINGTON, D.C.

(With eight illustrations.)



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By SWAN M. BURNETT, M.D., PH.D., WASHINGTON, D. C.

(With eight illustrations.)

MUCH valuable clinical material embodied in the histories of cases has been allowed to run to waste, because the observers did not deem the peculiarities or interesting features of sufficient importance to form the subject of a separate article for publication. It may have been that those points which attracted the attention of the observer were only single features of otherwise ordinary cases, and it was a question as to whether, after all, these features would be of the same interest to other practitioners; or it may be that they were of such a character as to be merely uncommon or *bizarre*, without any direct reference or suggestion as to pathology or therapeutics. And yet such cases may hold the key that is to unlock some of the treasures of knowledge still hidden from us. We are not yet in the position to ignore isolated facts seemingly small or insignificant; and there is not a single question in the whole range of ophthalmological studies in regard to which the final word has been said, and in respect to which some knowledge is not desirable; and it has seemed to me that if practitioners of experience were, from time to time, to publish a collection of such cases, recorded in a succinct manner, as have been interesting or novel in their eyes, we would be likely to find among them some nugget of knowledge which would be an addition to the golden granary of

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ophthalmological science. With this opinion, then, I feel that no apology is necessary for offering the following cases for the perusal of my fellow-practitioners, premising only, in answer to a possible criticism, that I have considered that those cases which held sufficient interest for me to cause me to report them, would not be without an interest likewise to, at least, some others to read. No attempt has been made to go into the literature of the different subjects suggested by the clinical histories, and they are submitted simply as gleanings from my case-books.

CASE I.

**RETRO-BULBAR NEURITIS, WITHOUT DISCOVERABLE CAUSE ;
MARKED SHOT-SILK RETINA ; CENTRAL SCOTOMA FOR RED ;
PECULIAR VISUAL FIELDS.**

Webster Burke, a strong, healthy negro boy, was seen at my clinic for the first time October 15, 1887. He was then fifteen years old. He had first noticed a failure of vision about a month before. There was no history of any disease, and the only thing

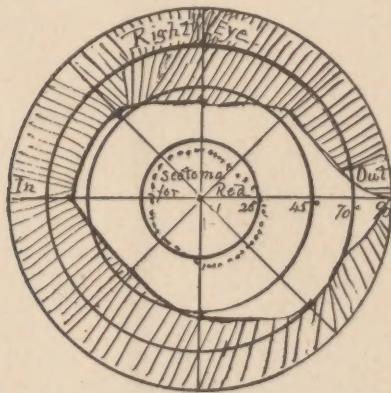


FIG. 1.—Visual field of Webster Burke.

he had to offer in explanation of his trouble was a blow on the left cheek some six months previously. There was nothing at the time of this examination to account for the bad vision, which was only $\frac{3}{10}$ in either eye. The so-called "shot-silk" appearance of the retina was as pronounced as I have ever seen it,

though it is very common in the negro race. The ophthalmoscope showed him to be emmetropic, and the disk normal. As there were no general symptoms of any kind, he was treated expectantly. He reported at the clinic regularly for some months, during which time there were no changes, and was then lost sight of until November, 1891, when he again presented himself, and was thoroughly examined. His vision is now $\frac{2}{60}$ in either eye. The visual fields are peculiar. They are approximately normal, as to outer limits for white, as shown in the diagram, Fig. 1, and also for red and blue. Green he cannot distinguish at all, calling it always brown in every part of the field. There is a central scotoma for red in each eye, which is nearly circular, extending from 15° to 25° from the point of fixation. Inside of this limit he says that the red looks dark, but of no definite color. The patient is an intelligent boy, and neither drinks nor smokes. Very marked changes, however, have taken place in the optic nerves since the first examination. Both disks are now white, and slopingly excavated. There is no material change in the size or number of the retinal vessels, except that there are scarcely any capillaries on the surface of the disks. The shot-silk appearance continues the same.

The interest in this case consists, first, in the obscurity of the cause of the nerve atrophy. It was caused undoubtedly by a post-ocular neuritis, and began most probably behind the chiasma, but so far as we can rely upon the absence of symptoms it was an isolated pathological process. It is hard to conceive of the blow he received as having a causative connection with the atrophy since this was bilateral, unless we suppose a fracture of the *sella turcica*. Secondly, the visual fields are peculiar. To find an approximately normal field for white in such an atrophy and with such a low central vision, cannot be common. In addition, we have a field for red of normal extent, but with a central scotoma quite clearly defined, and an inability to distinguish green in any part of the field; but normal fields for blue and yellow.

How far the SHOT-SILK OR WATERED-SILK APPEARANCE OF THE RETINA is a pathological condition it is hard to say. I have attempted to give some idea of its appearance in the

drawing, Fig. 2. The whitish streaks are seldom seen along the sides of the vessel unbroken for any considerable distance, and their position changes with the slightest change in the position of the mirror. It can be seen to advantage only in the erect image. You quite frequently get a shimmer from the surface of the retina itself, independent of the vessels. Sometimes a small vessel seems to be broken up into a series of beads, and the vessels appear to be broadened at places. But the most remarkable change is in the macular

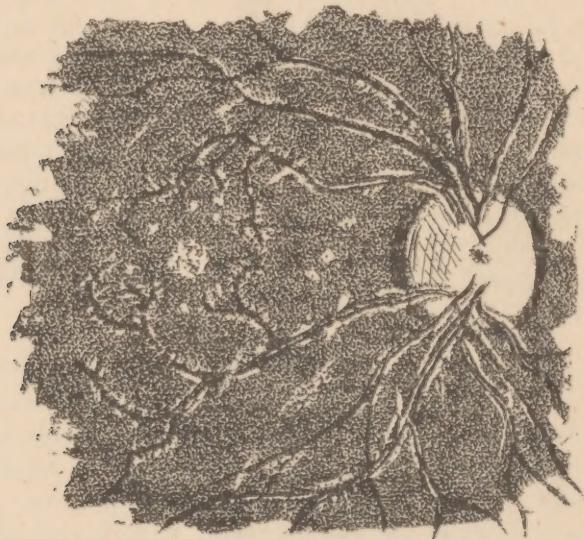


FIG. 2.—"Shot-silk" retina and white atrophy of the optic nerve.

region. Here, directly over the fovea, there is a spot having a diameter about equal to that of three veins of the first magnitude, of an irregular circular form, whose outlines are constantly changing with the slightest movement of the eye or the mirror. This must not be confounded with the halo around the macula which is so frequently seen in dark fundi particularly, though it seems to me that they both depend upon the same cause, namely, reflection from the hyaloid membrane. I have frequently seen it, however, on a small scale, in persons with much pigment directly at the yellow

spot. The reflex alongside of the vessels can be seen faintly on the surface of the white disk, but the width of the vessel itself appears much less on the disk than after its passage over on to the retina.

The most satisfactory explanation of this shot-silk appearance that I can offer is a thickening and opalescence of the hyaloid membrane, and I am disposed to regard it as pathological, or at least abnormal. In a recent paper on the ophthalmoscopic appearances in hypermetropia in the *Ophthalmic Review* for November, 1891, Mr. Bristowe offers the suggestion that the reflex which is more or less marked in certain cases of hypermetropia associated with arrested development, is due to a striated condition of the ganglionic cells of the retina, which remains over from the embryonal state. This view, it seems to me, is negatived by the fact that the appearance along the vascular walls is continued quite perceptibly on to the disk surface, where, of course, there are no ganglionic cells. The appearance which Loring speaks of on page 64, vol. i., of his text-book, is not the same as this, and is correctly, I think, accounted for by him as being due to increase of the normal connective tissue. That this appearance has any important connection with the nerve trouble in this instance we cannot say with positiveness, but I have one case in mind of a girl who has a low visual acuteness with emmetropia, in whom such a shot-silk appearance is very pronounced. In another case of a negro girl of ten there was associated with the shot-silk appearance a very contracted visual field in both eyes, most pronounced in the left. Her vision in this eye was $\frac{5}{12}$, in the right $\frac{1}{3}$, and the failure in vision was said to have been noticed after an attack of measles four years before.

CASE II.

CYST OF THE IRIS.

John H. D., colored, aged thirty-five, was seen by me for the first time July 18, 1885. He stated then that eleven years before he had been struck on the right eye by a bit of steel, which cut the eyelashes and penetrated the cornea, carrying some of the lashes with it. The steel and, as he supposed, all of the hairs were

removed by Dr. Bacon of New Haven, where the accident occurred. The lens was gone, and some capsule still remained in the pupillary space, which latter was drawn into the cicatrix. A CILIUM WAS SEEN LYING IN THE ANTERIOR CHAMBER as shown in the diagram c, Fig. 3. He can barely see his way

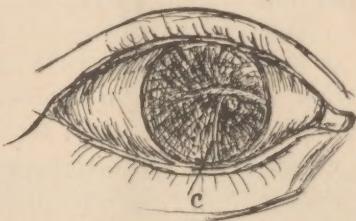


FIG. 3.—Cilium (C) in the Anterior Chamber.

about (the other eye was blind from optic atrophy following orbital cellulitis, an account of which I published in the ARCHIVES OF OPHTHALMOLOGY, 1885, p. 177).

On the 28th of September, I opened the anterior chamber, took out the cilium, and removed a piece of the iris, up to the dotted line of the drawing, Fig. 3. A discision of the opaque capsule was made later, which freed the pupil from the cicatrix, and with + 12 his vision was $\frac{1}{8}$. I saw him no more until February 18, 1887, when he came complaining of pain, which had begun about three weeks before, and a diminution of vision. I found some slight injection of the conjunctiva, and a state of things represented in Fig. 4. The lower and outer portions



FIG. 4.—Cyst of the Iris.

of the anterior chamber were filled with a smooth clearly outlined body which looked not unlike a dislocated lens, whose surface was dotted with points of pigment. The lens being absent, I made the diagnosis of cyst of the iris. He was sent to Garfield Hospital, and on the 25th I made an incision with a triangular

knife below, evacuated the cyst, and attempted to remove the walls, but after the collapse they could not be identified. The piece of iris which appeared to contain the base of the cyst was cut off. The patient made a good recovery and saw fairly well. Eighteen months later there was no return of the cyst.

CASE III.

LOSS OF EYE IN EARLY LIFE FROM INFLAMMATION (TRAUMATIC); SYMPATHETIC IRIDO-CHOROIDITIS MANY YEARS AFTER; ENUCLEATION OF THE ATROPHIC BALL; RELIEF TO THE IRIDO-CHOROIDITIS; FORMATION OF BONE IN THE VITREOUS OR RETINA, SPRINGING FROM THE OPTIC DISK.

It is much to be regretted that the detailed history of this case, taken during the patient's stay in the hospital, has been misplaced and cannot be found. As, however, its chief value lies in the pathological condition of the enucleated eye, I think it may not be without interest to give the general outlines of the clinical history as I remember it, to accompany the drawing of a section of the eye.

The patient was a mulatto, twenty-eight years old when he was admitted to Garfield Hospital in 1885. He was at that time suffering from an intense irido-choroiditis in the *left* eye, and had been for many weeks. He had had recurring attacks of inflammation in that eye for eighteen months or more, for which he had been treated by a surgeon, who, however, had never suggested the removal of the *right* eye, that had been lost in early life from an inflammation which he thinks began after an injury. The *right* eye was not inflamed, nor had it been for a very long time. It was quite hard, but there were no points sensitive to the touch. It was smaller than the other eye; the cornea was quite clear; the pupil closed, and the anterior chamber shallow. I advised the removal of the lost eye as the first step in the treatment, and it was readily assented to and done. Within forty-eight hours there was an amelioration in the intensity of the irido-choroiditis, which went steadily on to complete disappearance of pain and inflammation in the course of four weeks. Vision was very much impaired, and he was barely able to see his way about when he left the hospital. He has not been heard of since.

The eyeball, when opened by a cut at the equator, was found to contain a nearly globular mass, as hard as a bone, and it

seemed attached to the posterior pole of the eye. It was hardened in Müller's fluid, and in due time, after decalcification, some beautiful sections through the entire globe were made by Dr. Gray at the Army Medical Museum. A drawing of one of these sections through the optic nerve is given in Fig. 5. There is a mass springing from the optic-nerve entrance which contains what are undoubtedly the elements of bone, and between the Haversian canals there are the distinctive cells of adipose tissue. The lens has disappeared, but the anterior capsule remains. There are bands of pigment running down from the ciliary body towards the neoplasm, but do not reach it. There are a few pigment



FIG. 5.—Formation of bone in the eye, starting from the optic-nerve entrance.

granules near the apex of the bony mass, otherwise it is free. The sections showed the mass to be a solid, and not a shell, and it touched the walls of the globe at no place except the optic-nerve entrance.

Clinically this case is of interest as another instance of sympathetic ophthalmia setting in many years after the loss of the fellow-eye; for that the irido-choroiditis was sympathetic can hardly be doubted, since it began to improve immediately upon the removal of the degenerated ball; and had the surgeon who saw him in the first place removed the offending cause, that would have ended the whole trouble, and the vision in the remaining eye would have been saved. It also substantiates the opinion that intraocular bony formations always, in time, bring about sympathetic trouble in the other eye. Such cases tend to deepen rather than to clarify the mystery of the pathogenesis

of sympathetic troubles generally, though this particular case would seem to support the migratory theory, since the attachment of the bone to the optic-nerve entrance would be more likely to set up a disturbance in the nerve itself, which might be transmitted along the nerve through the chiasma, and to the nerve of the healthy eye. But here we have, as the prominent symptom at least, the irido-choroiditis as we usually find it in sympathetic ophthalmia. That the cause is microbic must be seriously questioned, unless we are prepared to admit the very prolonged vitality in germs remaining in a quiescent state.

FORMATION OF BONE in the eye is most commonly found in connection with inflammation in the choroid, and often as a shell occupying the position of that membrane. We find occasional mention in literature of cases in which this connection with the choroid seems to be doubtful. I am not able to recall any recorded instance, however, in which the bony growth appeared to originate from the optic-nerve entrance, as it undoubtedly did in this case. It almost seems as if the detached and degenerated retina had undergone this bony transformation, or else that it had taken its origin from the vitreous itself. Another feature of the growth which I do not think has been described in any other case is the presence of fat cells in large numbers.¹ The connection between these and the bony tissue is obscure, unless we regard it as the effort to complete the bony transformation by supplying it with marrow.

CASE IV.

TOTAL DISLOCATION OF THE LENS UNDER THE CONJUNCTIVA TO THE NASAL SIDE FROM A BLOW; REMOVAL; PRESERVATION OF THE EYEBALL.

A man of forty-five years was admitted to the Providence Hospital on September 20, 1891, with the history that while splitting kindling-wood two days before a piece flew up and hit him on the right eye.

When I saw him there was swelling of the lids, intense bloody

¹ I have found, since this has been in type, that De Wecker figures a bony formation in the eye in his text-book, 1889, in which there are a few fat cells. He credits the observation to Haase.

chemosis of the ocular conjunctiva, with a large ill-defined swelling to the nasal side of the cornea. The cornea itself seemed clear, but the anterior chamber was filled with blood. Tension was much reduced, and there was great pain. It looked as if there had been an extensive rupture of all the coats of the eyeball, and the prognosis seemed unfavorable for preserving the globe. It was determined, however, to attempt to save it. He was placed in bed, hot antiseptic dressings were applied, and pain quieted with anodynes. In a few days improvement began to show itself, and at the end of two weeks the eyeball was comparatively clear and presented the appearance shown in the drawing, Fig. 6. The large tumor with a circular outline to the nasal side of the cornea I took to be a dislocated lens. The pupil reached up to the inner edge of the cornea on that side and was irregularly triangular in shape. The tension had increased somewhat. I resolved to remove the dislocated lens from under the conjunctiva, and on the



FIG. 6.—Dislocation of the lens under the conjunctiva.

5th of October I did so by making a longitudinal incision in the conjunctiva over it. A quantity of soft lens substance immediately came out. The nest which the lens had made for itself in the tissues was thoroughly cleansed by a spoon and irrigation. There was no escape of vitreous, showing that the scleral wound had perfectly healed. The eye was made thoroughly aseptic and bandaged. No reaction followed. The conjunctival wound healed nicely and when examined on the 28th of October tension was almost normal. The anterior chamber was muddy with the remains of hemorrhage. The inner side of the cornea is bulged considerably forward; no reflex from fundus; no pain.

In this connection I give a sketch of

CASE V.

A CASE OF PARTIAL DISLOCATION OF THE LENS UNDER THE CONJUNCTIVA UPWARD.

T. H. M., age forty, presented himself at my clinic on February

18, 1890, with the history of a blow on the right eye some days before. An examination showed a tumor at the upper sclero-corneal margin which proved to be the lens, a portion of which was evidently still engaged in the scleral rupture, Fig. 7. There

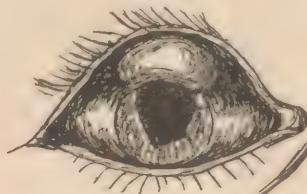


FIG. 7.—Lens engaged in a scleral rupture.

was a retroversion of the iris at the location of the wound. The pupil was black, but there was no reflex from the fundus. There was but a small amount of congestion of the conjunctiva. He promised to return and have the lens removed, but failed to come and has not been seen or heard of since.

CASE VI.

SUCCESSFUL EXTRACTION OF A FLOATING DEGENERATED LENS FROM THE VITREOUS CHAMBER.

A negro man sixty-nine years old was admitted to the Providence Hospital for mature senile cataract of the right eye on June 11, 1891. This was extracted successfully without iridectomy, and the healing was normal and the result satisfactory. There was no accident during the operation, though the vitreous was evidently fluid. The left lens, perfectly and uniformly white, was floating in the vitreous humor, and he reported that the eye had been bad for a great many years. When the lens was not behind the pupil he could see, and this was all the vision he had during the maturing of the cataract on the right eye. The tension was a little below the normal. He expressed an earnest desire to have this eye operated upon also, though warned that the result was very doubtful. On the 10th of June I extracted the floating lens in the following manner :

The assistant held the upper lid gently with his fingers against the orbital edge. I fixed the ball with the forceps just below the vertical meridian of the cornea and made puncture and counter-puncture with a Graefe knife as in ordinary extraction. As soon

as the counter-puncture was effected, and there was an escape of aqueous, I made firm but steady pressure with the fixation forceps directly backward. This threw the lens forward into the pupil and thus prevented an escape of the vitreous until the completion of the section, when the persistent backward pressure delivered it through the pupil with a gush of fluid vitreous. We were prepared for this, and as soon as the lens was thrown out the assistant quickly dropped the upper lid, and the bandage was immediately applied. The dressing was not disturbed for five days, and when the eye was opened at the end of that time the corneal wound was found well united, with an entanglement of the iris, however, as was expected. There had been no undue reaction, and there was, and is yet, quite an amount of vision. The lens, which came out in its capsule, was found to be entirely fluid, and rolled about like a drop of water. Unfortunately, while manipulating it, though very gently, the capsule burst and the contents, which seemed clear, ran out and not a trace of nucleus was visible. The capsule also was quite transparent.

In addition to the interest attaching to a successful extraction of a floating lens, the condition in which the lens was found, I think, affords a possible explanation of the sudden disappearance of some long-standing cataracts, of which we now and then have accounts. It would be very easy in a case like this, by a sudden jar or by a continuance of the regenerative process, for the capsule to have ruptured, when the contents would diffuse itself readily in the fluid vitreous. It might be advisable in such cases, for the attainment of this end, to prick the lens with a needle. I have used the bident devised by Dr. Agnew three times in extracting lenses dislocated into the anterior chamber, but I deem the method I employed in this case preferable for lenses floating in the vitreous.

CASE VII.

CHEMOSIS OF THE CONJUNCTIVA AND LID CAUSED BY THE INGESTION OF A SINGLE GRAIN OF QUININE.

The vagaries of quinia intoxication are very great, and one of the most interesting in its effects on the eye that I have seen is the following:

Mrs. W. H. R., age thirty-two, came on March 6, 1891, with a marked clear chemosis of the outer part of the bulbar conjunctiva and the lower lid of the right eye. On making inquiry as to the cause she stated that an hour before she had taken one grain of sulphate of quinia. It appears that she has always been peculiarly susceptible to the influence of quinia. In early life, whenever taken in any quantity it produced urticaria. Three years ago, however, she was able to take it without any unpleasant manifestations, but one year ago her physician, Dr. Busey, prescribed four grains, and in one hour it was followed by a marked chemosis of the lids and conjunctiva of both eyes. This subsided in about two days. It was looked upon as a mere coincidence, and some months later the quinia was repeated with the same result as regards the chemosis. This morning at nine o'clock she ventured to take a single grain with the result as described. Vision was not impaired, and there were no unpleasant general manifestations. The chemosis subsided in about forty-eight hours.

CASE VIII.

PERIODIC CONGESTION OF THE CONJUNCTIVA FROM VASO-MOTOR DISTURBANCE.

Mrs. J. W. B. I saw first March 3, 1884, on account of congestion of the conjunctiva which had come on suddenly the day before. There was no discharge of mucus or pus, but quite a flow of hot tears. The congestion of the conjunctiva was quite marked and mostly pericorneal, and the eye generally had a suffused look. The conjunctiva of the lids participated very little in the congestion. The iris was normal. There was some photophobia but no decided pain. She states that she has had occasional attacks like these during and since the climacteric period ; she is now over fifty. They are always preceded by some nervous disturbances, the principal of which are coldness of the extremities and drowsiness. They have been known to follow nervous excitement or strain. These attacks have been treated at different times as iritis and conjunctivitis by means of leeches, astringents, etc. The attacks generally last about three days. Sometimes one eye is affected and sometimes the other, very seldom both at once. There is always a feeling of heat, and a flushing of the side of the head corresponding to the eye affected.

They would occur sometimes as often as every two months, but once she was free for two years. She has slight hypermetropia in the right and a hypermetropic astigmatism of 0.5 in addition in the left.

There can hardly be a doubt that the congestion in this case is due to a disturbance in the vaso-motor nervous system, though an exact connection with the cause cannot be made out beyond its association with the climacteric disturbances. Of late years the attacks have become much less frequent and severe, owing most probably to the fact that her general health has been much improved by rest and travel.

CASE IX.

WRINKLING OF THE CORNEA.

That the nutrition of the eye is interfered with to such an extent as to cause a contraction or wrinkling of the cornea in certain cases of general malnutrition is well known, but I do not think it is generally recognized that an inflammation, confined to one eye, will bring about such a change in the corneal outline. It is very probable, however, that if we examined eyes in a state of inflammation by means of the keratometer more frequently, such changes in its curvature would be observed oftener. The most marked example of this that I have observed is as follows :

Mrs. L. S. F., age twenty-five, was first seen March 21, 1889. There was then a good deal of suffusion of the right eye, with pain, which had existed for several days ; it was somewhat sensitive to touch. She had had an inflammation in that eye some years ago. The cornea was, at the time of the examination, perfectly transparent with no sign of present or past inflammation. Vision in the right eye was $\frac{5}{6}$, in the left $\frac{1}{2}$, and in the latter was increased by — 0.5 180. No glass improved vision in the right. The ophthalmometer gave, in the left, a curvature corresponding to 40.5 D in the horizontal, and 39.25 D in the vertical meridian. In the left it gave 40 D; but the image was very irregular. Examination with Placido's disk gave the image as shown in the drawing, Fig. 8. The peculiarity of this image is that, though

the lines are approximately circular as they are in the normal cornea, they are almost regularly fluted. I have frequently seen parts of a line or lines of this form in corneal troubles, but never, as in this case, throughout its whole extent and affecting all the circles. The skiascope did not show any amount of irregular astigmatism, but the ophthalmoscopic picture was not as clear



FIG. 8.—WRINKLING OF THE CORNEA.

and distinct as in the other eye. The iris was normal, tension slightly reduced. About a week later a circumscribed keratitis developed in this eye, which ran a rather slow course, but ultimately resolved itself perfectly. An examination on December 14th showed that the cornea was of normal transparency and vision was nearly $\frac{5}{6}$, while the keratoscopic and ophthalmometric examinations gave absolutely nothing abnormal.

It seems probable that we had here to deal with a mild cyclitis which was, however, sufficient to lower the tension and diminish nutrition to such an extent as to destroy the normal elasticity of the cornea.

EYE AFFECTIONS FOLLOWING LA GRIPPE.

To the literature of eye affections following epidemic influenza, I can contribute the following cases:

CASE X.

RETROBULBAR NEURITIS IN A NEGRO FOLLOWING LA GRIPPE, SUCCEEDED BY ATROPHY AND GREAT NARROWING OF THE VISUAL FIELDS.

Taylor Triplet, a colored man, twenty years of age, was seen at my clinic first on June 6, 1891. He had had an attack of *la grippe* two months before, and on convalescence had noticed that something was wrong with his eyes. He had at the time a central vision = $\frac{1}{6}$ in either eye. Visual fields as in diagrams, Fig. 9, A and B. Inside of this field color perception was good.

The ophthalmoscope revealed nothing abnormal, except, perhaps, a slight blanching of the nerves at the upper outer quadrants. The patella reflex is not good, but he stands well with his eyes shut, and can walk backwards. There is no pain in the head, and he does not remember that there was any unusual pain in the eyes or orbits

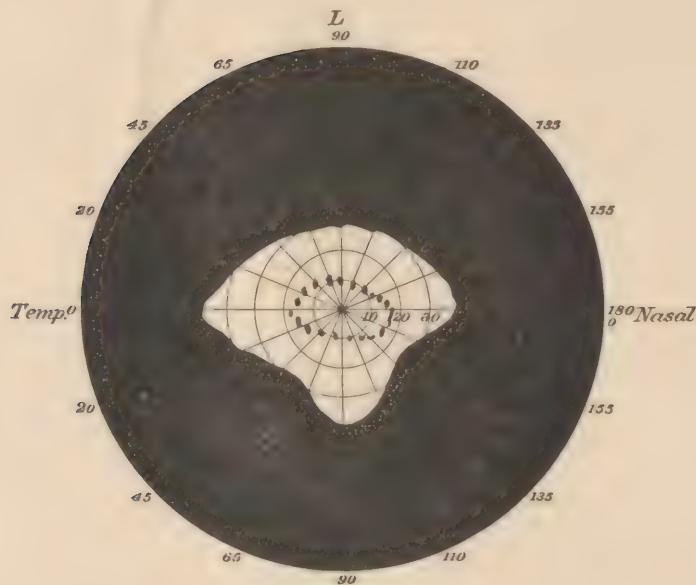


FIG. 9.—A.

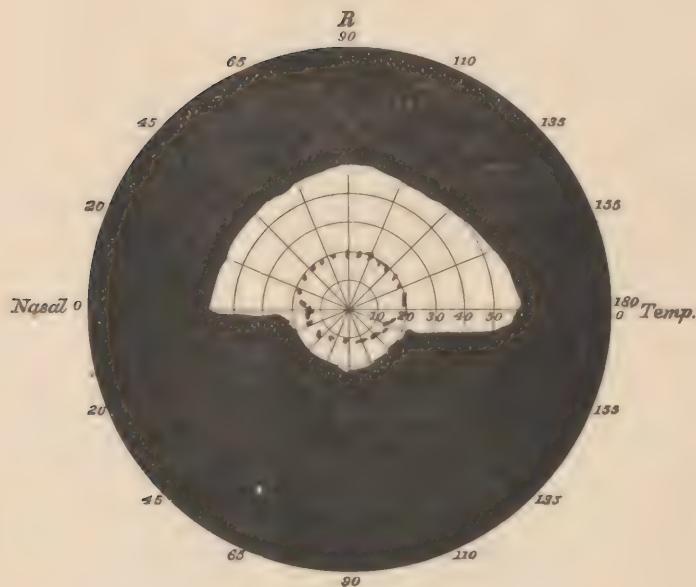


FIG. 9.—B.

during the attack of influenza. His intellectual faculties are the same as before the attack. No history of syphilis can be elicited.

He was not seen again until November 16th, when he was led to the clinic, not being able to find his way about alone. His visual fields were then contracted to the inner dotted circle in the diagrams. Central vision was $\frac{1}{15}$ L, $\frac{6}{10}$ R, and colors were correctly distinguished. Both disks were now white, but the retinal vessels were normal as to number and size. There were some capillaries on the disk surfaces. On December 3d the fields had contracted to less than 10° in both eyes, but he could still distinguish single letters of No. 18 at 5 m. Color perception within this limit was good. He disappeared and has not been seen since.

CASE XI.

RETROBULBAR NEURITIS, ATROPHY. LATERAL DIPLOPIA, CURED.

James Eastman, a negro of thirty, was taken with *la grippe* on November 30, 1891. The attack was rather severe. About Christmas-time he noticed trouble with his eyes, preceded by some pain in the back of the head. There was lateral diplopia and dimness of vision. The diplopia ceased to be noticeable in March, but the failure in vision continued to increase until, at the time of examination (June 10, 1892), there was barely perception of light. The pupils are of medium size and respond feebly to light. Movements of the eye and lids good; media clear. The disks are white and rather dirty-looking; outlines not very sharp. Retinal arteries much narrowed in calibre; veins about normal in size and not tortuous. There is quite a noticeable white streak along each side of all the large vessels, which extends even on to the surface of the disk. In the right eye some small white dots and oblong patches are seen to the lower and outer side of the disk, mostly along or in the vicinity of the blood-vessels. The patient's general health is, and has always been, good, and there are no signs of ataxia.

CASE XII.

ATROPHY OF BOTH OPTIC NERVES FOLLOWING LA GRIPPE.

Smith Jackson, colored, age twenty-eight, had influenza in February, 1891. A month afterwards he noticed that vision was failing, and the failure has been gradually increasing until now (four months after the first symptoms were noticed) he counts fingers at three feet with either eye. The visual fields are much

contracted concentrically. The disks are white, with good sharp outlines, and the retinal vessels are but little, if any, changed. The tendon reflex is good.

CASE XIII.

CENTRAL SCOTOMA IN ONE EYE FOLLOWING LA GRIPPE.

Mrs. S. E. J——, aged forty, seen first May 26, 1891. Had *la grippe* in the early spring, and on convalescence noticed that vision in the right eye was bad, and that there was a "spot" before it, through which objects look blurred and oftentimes of a reddish color. Vision in that eye = $\frac{5}{24}$, and, under a mydriatic, was increased to $\frac{5}{18}$ by a + 0.75. Fundus seemed normal. She also has homonymous lateral diplopia at the extreme left upper field of fixation. The scotoma has a diameter of 5 cm at a distance of 50 cm. The visual field is slightly contracted. She was under observation for a month, during which time no change in the condition was noticed.

Besides acting directly and primarily as a cause of neuritis, it would seem that the poison of influenza also hastens the operation of other causes of neuritis, as it does of those of other diseases, tuberculosis in particular. The two following cases would seem to be instances in point.

CASE XIV.

COMPLETE ATROPHY OF BOTH OPTIC NERVES IN A MAN WHO HAD BEEN A HEAVY SMOKER, AFTER AN ATTACK OF LA GRIPPE.

J. H. M——, thirty-eight years of age, seen for the first time November 14, 1891. Nine months before he had had an attack of influenza in which the pain was mostly over the left eye, and immediately after noticed a decided failure of vision in the left eye, which has gradually increased until he can now count fingers only at 2 m. Vision in L eye, $\frac{5}{12}$.

Six years ago he had a paralysis of the left external rectus, after a blow on the left side of the head, which disappeared in the course of seven months. He had some diplopia again on recovering from *la grippe*. There is no history of specific infection. His wife has had four children; one died of small-pox, another of meningitis, the two living are healthy. The V F in left is contracted; in the right it is about normal. In the left the

optic disk is grayish-white, and slopingly excavated all around. There are but few vessels on the disk. In the R the atrophy and excavation are confined to the outer side, the inner side being on a level with the fundus. With the left he recognizes blue and green, but confounds red and light yellow. Colors in right normal. He has been a great consumer of cigars, smoking often as many as thirty daily. At time of attack smoked regularly six pipes a day. He was seen again July 16, 1892, and in the meantime had seen surgeons in New York and Philadelphia, who had treated him with strychnia and bichloride. He had gotten steadily worse, so that now there is only perception of light in left, and in right $V = \frac{3}{10}$. Left pupil widely dilated and immovable. The right disk is bluish-white and slopingly excavated; vessels do not appear to be greatly changed.

CASE XV.

FAILURE OF VISION AFTER LA GRIPPE IN A MAN WHO SMOKED RATHER EXCESSIVELY.

Mr. A. P. F——, age fifty-six. Had an attack of influenza two years ago, complicated with pneumonia. In November, 1891, he had another, in which the gastric and intestinal symptoms were most prominent, and, being in the South at the time, he took 100 grains of quinine in ten days. On January 1, 1892, he observed that his vision was failing. There was no pain in the eyes, but he noticed flashes of light when he was in the dark. At the time of examination, March 6, 1892, vision = $\frac{5}{10}$ in either eye, with + 2 = $\frac{5}{10}$; but all objects have blurred outlines. Visual fields for white somewhat contracted concentrically, as were also those for colors. Central color perception good; no specific history could be elicited, and the tendon reflex was good. There was no change in the fundus which could satisfactorily account for the diminished vision. The disks were of good color and the retinal vessels were normal. He was put upon strychnia, $\frac{1}{10}$ gr. three times a day, and this was continued for a month. At the end of that time there was no essential improvement. It was then learned for the first time that he smoked more than moderately, sometimes as many as eight or ten cigars a day. His smoking was stopped, and in the course of several days an improvement was noted. This continued, with occasional slight relapses, until it reached almost the normal when last seen some four months after the first visit.

CASE XVI.

SUDDEN BLINDNESS IN LEFT EYE AFTER LA GRIPPE.

Chas. F——, colored, age thirty-one, seen first May 12, 1891. Had *la grippe* this spring, and on convalescence noticed one day that he was blind in the left eye. During his illness he had great pain in the left temple, which radiated towards the left ear. In this eye the visual field is entirely lacking, except at the upper and inner part. The media are clear; the disk is paler than its fellow and slightly excavated. The other eye is normal.

I have notes of a number of cases of paresis of the various ocular muscles, which showed itself as a succedaneum of influenza. Sometimes but one muscle was attacked, but frequently two or more. In the majority of cases these had a happy issue in complete recovery.

There have been, in addition to these, a number of cases of heterophoria with asthenopia and other nervous symptoms, in which the trouble as regards the eyes and head dated from an attack of the disease.

CASE XVII.

HEREDITARY CONGENITAL OPTIC-NERVE ATROPHY.

Cases of this peculiar affection are not so commonly met with as to make the report of other instances without interest, particularly in view of the fact that we are not yet certain that all the cases should be placed in the same category. Many of those reported have been instances of optic neuritis, some of them coming on a number of years after birth. In the cases here reported it would seem that, some at least, of those afflicted were born with the amblyopia upon them, and we are not able in such a case to say how far arrest in development may have operated as a cause. The presumption, however, seems to be in favor of a neuritis, possibly intrauterine. The fact that it is hereditary and that the neuritis appears for the most part in young people would seem to show that the developmental processes are at least defective and play an important rôle in all cases.

Scott Holt, aged twelve, was seen for the first time on May 1, 1892. He was sent to me from the country by his physician in order to have glasses fitted for the improvement of his vision, which was very bad. On examination I found that he could count fingers only at one metre's distance with either eye, and, according to the statement of his mother who accompanied him, he had never seen any better. There was a white atrophy of both disks, but no marked excavation. The retinal vessels were normal in number and size. The visual fields were much contracted for form. In testing with Holmgren's worsteds he mixed grays and blues with green, and the browns and olives with pink. The teeth were good and there was no evidence of inherited disease. The ophthalmoscope showed emmetropia.

CASE XVIII.

OPTIC-NERVE ATROPHY IN THE MOTHER OF THE FORMER PATIENT AND HER FAMILY.

After the examination of the son was finished the mother informed me that her vision was also defective, and on testing I found it to be $\frac{1}{70}$ in either eye. The optic disks were bluish-gray, but of good outline. The retinal vessels were normal. Visual fields contracted for form. Color-test gave a mixing of gray and blue with green; salmon, yellow, green, and purple with pink; purple and green with blue. She does not remember that her vision has ever been better than it is now.

On inquiry I learned that very defective vision was common among her relations on her mother's side. Her mother's vision had been about the same as her own, and her maternal grandfather also saw very badly; and in all there were five uncles and aunts on her mother's side who were known to have had impaired sight, and, presumably, due to the same cause. In her father's family, as far as known, there were no instances of markedly bad vision.

TENONITIS AND ORBITAL CELLULITIS.

While orbital cellulitis is not an uncommon affection, it is not of so frequent occurrence as to render some points of the following cases devoid of interest.

CASE XIX.

TENONITIS.

I was asked by Dr. Mauss to see with him a girl of eleven years on the 2d of March, 1891. He had been called to her the day previous and learned that three days before she had complained of a slight headache and the parents noticed a swelling of the right eyelids. She had been in good health and no cause could be assigned for the trouble. There was no history of a blow or any traumatic injury. There was, when I saw her, a marked exophthalmos directly forward, some slight swelling and redness of the lids, and a chemosis of the ocular conjunctiva, quite pronounced below. The globe was absolutely fixed, there being not the slightest movement in any direction; pupil dilated and immobile; vision much reduced, and some slight pain at times on that side of the head. Temperature normal. The media were clear, but the sharp outlines of the disk were lost. The retina looked swollen, grayish, and infiltrated; no redness distinguishable in the fundus; veins a little swollen but not very tortuous; no hemorrhages. On the 3d I made punctures, under chloroform, into the orbit, through the lids above the inner canthus and between the outer canthus and the chemotic conjunctiva, going by the side of and back of the globe. Bloody serum escaped, but no pus. Temperature still normal. On the 4th the ophthalmoscopic picture was the same, but there was a slight movement of the globe up and down. On the 5th there was greater movement, and a flow of tears, for the first time since the attack. The fundus appeared somewhat red and more vessels were visible. Mercurial inunctions were ordered and a blister applied to the temple. On the 7th the exophthalmos had perceptibly diminished, but there was still no movement outward. On the 9th, the retinal vessels were much larger and the outlines of the disk were faintly seen and there was a slight movement of the ball outward. On the 11th the disk was clearer, but the movement outward was still very slight. Improvement continued steadily, so that on the 19th, when she was examined at the office, vision in the right (affected) eye was $\frac{1}{8}$, that in the left being $\frac{1}{4}$; pupil smaller and responsive to light; disk quite clear in outline and only a slight tortuosity of the vessels. Ophthalmometric examination of the cornea showed nothing different from that of the fellow eye. 29th, diplopia in the outer fields of fixation, vision right $\frac{1}{2}$. April 12th,

diplopia only at the extremes of fixation fields; vision $\frac{1}{2}$. Sept. 18th, an exophoria of 2 P. D. both for near and far.

It is claimed that we can draw a clear line of distinction between orbital cellulitis and tenonitis, and if we can, this case would certainly fall, I think, in the category of tenonitis, and would be of the serous form. In tenonitis we would have the pressure closer around the globe, involving all the muscles, producing absolute immobility and the exophthalmos would be directly forward. The pressure on the nerve and its vessels would also be more direct than in the case of abscess, unless the abscess were situated in its immediate vicinity. The cause of the inflammation in this instance I cannot even surmise. Such cases have been referred to *la grippe*, but this case occurred before the epidemic of *la grippe* appeared among us in 1891. It made its appearance that year in April, and, besides, there was at no time any febrile or other systemic disturbance; the trouble remained purely local. It is not without interest to note the complete recovery of the retina from a very intense serous infiltration, and also the entire absence of hemorrhages, which are so commonly an accompaniment of mechanical obstruction to retinal circulation.

Quite distinct from this case in its clinical aspects is the following, which is one of ordinary cellulitis, probably metastatic, ending in abscess.

CASE XX.

ORBITAL ABSCESS.

A man of twenty-five years was admitted to Garfield Hospital for a fever supposed to be malarial. He also had a stricture of urethra which he was waiting an established convalescence to have treated. On the 19th Dec., 1891, he complained of pain in the upper maxilla of the right side, and within ten hours there was a great swelling of the lids and an exophthalmos somewhat downward and outward. The eye was very tender to the touch, conjunctiva was chemotic below, and there was a slight discharge of muco-pus. Movement of the eye limited in all directions. Temperature reached 101° that day. The pupil had been dilated by

atropine, the fundus was normal, and the vision good. On the 22d, a painful swelling appeared on the left wrist. There was no indication of a pointing of an abscess in the orbit; temperature from 99° to 101° ; treatment, hot applications externally. I was unable to see him again until the 26th, when I found that the abscess had pointed above the inner canthus and discharged a quantity of pus. It was kept empty by pressure on the globe backward and inward. On the 29th I opened another abscess pointing below the inner canthus. The movements of the eye good and vision unimpaired. On Jan. 20, 1892, the sinus had healed and the eye was in a normal condition. The abscess at the wrist was still discharging.

CASE XXI.

TWO ATTACKS OF DOUBLE PAPILLITIS IN THE SAME PATIENT.

I much regret that the notes of the following case, recorded at the time, were lost, but the essential facts were as follows:

A colored woman of thirty was seen at my clinic for the first time about seven years ago. She had then very marked double papillitis and the vision was very much impaired though she could see to get about alone. The only complaint she made at that time was of headache, which was quite steady and had been for some time. There was no paresis or paralysis. Her intelligence was of a low order, and a clear clinical history could not be obtained. There were no signs of central nervous disease discoverable aside from that above stated. Thinking that specific disease might be at the bottom of the trouble, though the history pointed very indefinitely in that direction, she was put on specific treatment, and in the course of some weeks the papillitis began to subside. After four or five months there was scarcely a trace of it left, and her vision was vastly improved. Three years later she returned, and there was a full-blown papillitis in both eyes, accompanied by a more serious impairment of vision than before. She was unable to go about alone. There was no paralysis, but her mental condition had deteriorated sadly, and she complained of an incessant headache. She was not able to give any intelligent account of herself or her symptoms, and in a short time departed and we were unable to find her.

I have on more than one occasion seen papillitis, which was due undoubtedly to intracranial trouble, subside, but, so far as my own experience goes or my examination of the literature allows me to judge, cases of a second attack must be very rare, though I see no reason *a priori* why they should be. The intracranial conditions which lead to the papillitis are, as we know, very fluctuating, and the cause which leads to one attack would certainly be liable, when renewed, to bring about the conditions for the renewal of the neuritis.

CASE XXII.

GUMMATA OF THE CILIARY REGION.

Two reasons have led to the reporting of the following cases. The first is that instances where gummata of the eye have come to enucleation and examination, though there are several cases on record, are not so common as to render further contributions to their study altogether superfluous, since the manifestation of syphilis in the eye is always a matter of serious moment when the possibility of its issue is considered. The second is the fact of the rapidity and malignancy with which these growths developed, and particularly when this is taken in connection with their appearance in negroes, in whom all syphilitic manifestations are much milder and more easily controlled than in the white race. The latter statement as to the mildness of syphilis in the negro may be new to some, but it is one which is supported by my own experience in an eye-clinic in which three fourths are of the African race, and by the experience of my surgical friends whose practice is among the same class. The only explanation of this that I have heard offered is that this race, through its proneness to suppuration at the initial lesion or at the glandular implications, either absorbs less virus or throws it off more readily than does the white race. On this point, however, I think we are in need of more substantiating proof, for my own observations will not allow me to grant a greater proneness to suppuration, at least in the eyes of the negro, either from inflammation or after operation.

Joseph S——, colored, aged twenty-three, came to the clinic for the first time on November 2, 1888. He then had a simple iritis of the right eye. He gave a history of an initial lesion some four months previously. There was no eruption, and he said there had been no considerable enlargement of the inguinal glands. The post-cervical glands were swollen. He was put on the usual specific mixture, and ordered atropine drops. On the 15th a gumma was noticed on the iris at the outer lower pupillary edge. The dosage of the specific mixture was increased, but the increase in the inflammatory process was so rapid that he was sent to Garfield Hospital for better care and more vigorous treatment. On the 28th an hypopyon appeared and the general condition of the eye was so much worse that he was put upon a vigorous course of deep muscular injections of sublimate and inunctions. In spite of this, on the 30th, a swelling 3 mm long made its appear-



FIG. 10.

ance in the upper ciliary region. The injections and inunctions were continued, but with no apparent effect on the eye, which was frightfully painful and required the constant use of opiates for relief. The swelling increased slowly, and the eye took on a generally disorganized look. The patient appealed so persistently for a removal of the eye on account of the pain that I acceded to his request and the eye was enucleated on the 22d of December.

The eye after hardening in Müller's fluid was cut by Dr. Wm. Gray, of the Army Medical Museum.

An antero-posterior section through the ball of the eye is given in Fig. 10. The sclera is intact except at the ciliary region where the growth has pushed its way through both it and the cornea at *c*. The cornea and sclera on the other side seem in a

fairly normal condition. The growth has thrust itself inward to the back of the lens, *d*. The section is through the middle of the growth, and consequently the lens is cut near its equator, which has been somewhat dislocated to the other side. The ciliary body on this side also participates to an extent in the morbid process. The choroid, *b*, is detached except at the posterior part, and the retina, *a*, is wholly separated and drawn far forward, and is implicated, in its anterior portion, with the growth. The growth itself is not uniform in structure, but presents areas, *g*, of greater density than the surrounding parts and which are quite clearly circumscribed.



FIG. II.

A magnified appearance of a portion where it passes out through the cornea is shown in Fig. II.

The sclera, *s*, is seen to be in fairly normal state, and so is the cornea, *c*, immediately adjoining. At least they are not involved in the special pathological process. The mass is composed entirely of small round cells with only a few connective-tissue fibres. At the spots of greater condensation, *g*, they are so far reduced in size as to be almost amorphous, and are evidently the beginnings of a process of breaking down. In these there is no connective tissue whatever. Macroscopically these

spots have an appearance not unlike the giant cells of tubercle. The larger part of the mass itself is not vascular, but in the degenerated corneal and in the choroidal and ciliary tissue there are numbers of vessel, *v*, in all of which there is abundant evidence of a thickening of the vascular walls. In fact, all the vessels wherever seen show signs of a vasculitis. The capsule of the lens, *l*, is intact.

The other eye was not attacked, and when the patient was seen for the last time some months after the enucleation, there was no evidence of the disease apparent.

CASE XXIII.

H. J., colored, aged eighteen, was admitted to the clinic January 4, 1889, with the diagnosis of specific iritis of the left eye. He said that he contracted the initial lesion in July, 1888, and was treated at the Freedman's Hospital for secondary eruption in September. In November the eye was inflamed for the first time. Since then it has been painful at times and latterly almost continuously. There were the signs of an iritis of rather unusual severity, and he was put upon strong specific treatment. At the end of a week a swelling was noticed at the upper ciliary region, and he was sent at once to the Garfield Hospital and submitted to the same treatment by inunctions and deep muscular injections of bichloride as in the preceding case, but with as little avail. The pain complained of by these patients was most excruciating and continuous, and this one, too, begged for an enucleation, which was done on March 30, 1889.

The accompanying drawing (Fig. 12) shows the relative situa-

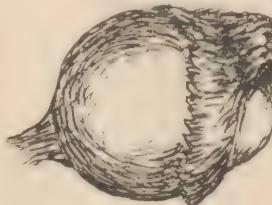


FIG. 12.

tion and size of the growth immediately after enucleation. The microscopical section did not reveal anything essentially different from the preceding case. He was discharged from the hospital

April 5th, and we have heard nothing from him since, as we would have done had there been a return of the trouble in the other eye.

CASE XXIV.

DOUBLE SYMMETRICAL UPWARD CORECTOPIA.

Manz in his classical treatise on malformations of the eye in Gräfe and Sämisch's *Handbook*, vol. ii., says that corectopia of high degree in which the pupil is displaced from the centre and drawn far towards the edge of the cornea is rare, and that the displacement is usually downward and inward; and further, that cases of "pure" corectopia in which the iris structure has undergone no changes are very uncommon and of great interest as bearing upon the question of the connection of such displacement with coloboma.

I give the accompanying drawing (Fig. 13) therefore as a

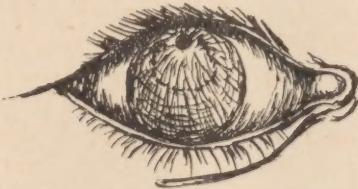


FIG. 13.

representative of such rare conditions. It was in the person of a girl of three years, who was brought to my clinic by her mother, June 26, 1892. The pupil in both eyes was drawn, as shown in the figure, directly upward and reached almost the edge of the cornea. There was, however, a small bridge of iris tissue left at this place. The pupil was unusually small for a child of that age, and was by no means active. The vision seemed to be fairly good. Under atropine, 2 per cent., the pupil dilated to the dotted lines shown in the drawing. The fundus under ophthalmoscopical examination revealed nothing abnormal. There was no coloboma of the choroid, nor any displacement of the lens that could be discovered.

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